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Allis-Chalmers and Lima . . .

form perfect combination for

CLARK & KRCHMAR COAL CO.



Clark & Krchmar's Lima 2400

Clark & Krchmar Coal Co., Portersville, is just one of many leading firms that depend on equipment from Highway to speed stripping and cut production costs.

You will find it profitable to discuss your needs with your Highway representative. Regardless of the nature or size of your requirements, Highway is prepared to serve you promptly, efficiently, economically.

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General Motors Diesel Engines • Power-Pack Conveyors
Gar Wood • Lima Shovels, Cranes, Draglines • Master
Michigan Tractor Shovels and Excavator-Cranes

Thor • Jaeger



In addition to its Lima 2400, Clark & Krchmar also uses a Lima 44.



And . . . like all leading mines, Allis-Chalmers HD-21s are on the job 24-hours-per-day every day at Clark & Krchmar Coal Co.

ALLIS-CHALMERS

HD-21

**Engineered to take the STRAIN, the SHOCK,
and the GRIND of tough dozing jobs**



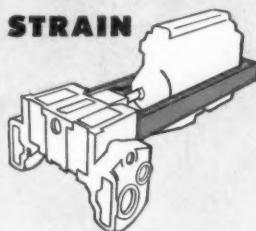
HD-21

Approx. Weight (as illustrated)
with hydraulic angledozer

51,845 lb

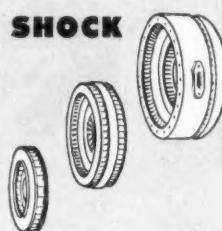
204 net engine hp

THE STRAIN



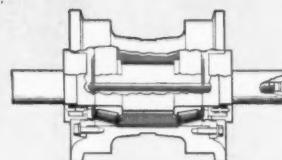
Frame-twisting stresses prove the value of the Allis-Chalmers all-steel, Box-A Main Frame. It is strong and flexible . . . soaks up strains. It is a complete unit . . . does not use the engine as a structural member. It allows more efficient equipment mounting, provides excellent weight distribution and makes possible unit construction for unmatched servicing ease.

THE SHOCK



Sudden overloads are common in dozer operations. But hydraulic torque converter drive cushions the shock and protects the entire power train. This drive is standard equipment on the HD-21 and has been proved on Allis-Chalmers tractors since 1941.

THE GRIND



Sometimes tracks churn all day in fine, abrasive stone . . . could be a serious threat to final drives, idlers, truck wheels and support roller bearings. But this "grinding compound" never reaches the bearings on an Allis-Chalmers tractor. Exclusive design features make it possible to use tapered roller bearings with Positive Seals that keep dirt and moisture out and hold lubrication in for at least 1,000 hours.

ALLIS-CHALMERS, CONSTRUCTION MACHINERY DIVISION, MILWAUKEE 1, WISCONSIN

Get all the facts from your Allis-Chalmers dealer . . . now!

ALLIS-CHALMERS

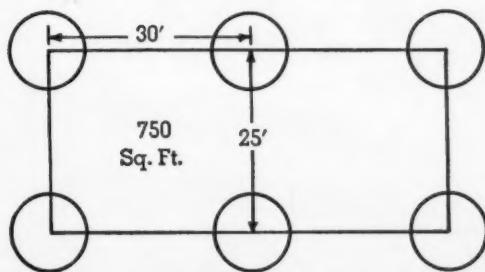
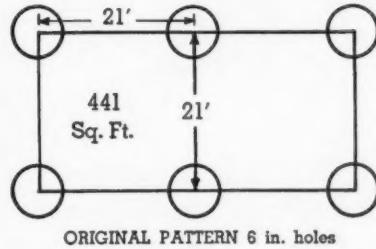


STRIPPER CUTS COSTS 25%

drilling larger blast holes with a
McCarthy Heavy-Duty Drill



This strip mine operator cut drilling and blasting costs 25% by using this 25' x 30' pattern of 8 in. blast holes—drilled by two McCarthy Heavy-Duty Vertical Auger Drills.



A Southern Ohio strip mine operator cut his drilling and blasting costs by 25% when he widened the blast hole pattern and switched from 6 in. diam. to 8 in. diam. holes. He used McCarthy Heavy-Duty Vertical Auger Drills and a new type of explosive to remove the sandstone overburden.

A cost study made by the operator shows that the McCarthy drill bored the 8 in. holes at less cost than the 6 in. holes. Four 6 in. diam. holes covered 441 sq. ft. Four 8 in. holes covered 750 sq. ft. Since fewer 8 in. holes were required to drill the same area, over-all drilling time was cut in half. In each pattern, the amount of hard rock drilling was the same. The study included five work shifts of two McCarthy Model 106-24 Auger Drills, one using 6 in. and the other using 8 in. flights. The stripper figured all drilling and blasting costs, including fuel, labor, bits, explosives, etc. Over-all cost saving was 25%.

McCarthy Heavy-Duty Vertical Auger Drills drill up to 24 in. diam. holes faster than any other auger drill. Start cutting your costs now by phoning the nearest Salem Tool representative. Or write for Bulletin M-100.



Manufacturer of Drilling Equipment Since 1901

THE SALEM TOOL CO.

767 S. ELLSWORTH AVE. • SALEM, OHIO, U. S. A.

535 million tons...predicted

Dramatic Comeback

Coal Output Mounts, New Gains Ahead

Coal's dramatic comeback on the industrial scene was one of the bright spots of 1956. Production rose sharply for the second straight year and all the signs point to even better times ahead.

Soft coal output in 1956 climbed to 510 million tons from 474 million in 1955.

The 1957 production is estimated at 535 million.

Bituminous production has risen decisively from the 394 million tons in 1954, the lowest since 1938. Key factors behind the revival has been increasing demand from steel mills, electric utilities and foreign consumers.

The growing demand for coal has put pressure on the industry to expand its facilities. It has been estimated that over the next 10 years at least 100 new mines, each with an annual capacity of one million tons, will have to be opened. The expansion

solidified with a promise of further growth. Overseas exports took 15 million tons in 1954, 34 million in 1955, and should hit 48 million this year and, unless prevented by transport bottlenecks, grow to 55 million tons in 1957.

Losses in the railroad market have been nearly concluded. The long term decline in residential use should proceed at a lesser rate in future years.

Competitive losses in commercial and small industry markets are being reversed to some degree, and on balance are offset by growth in coal consumption by larger industrial users.

Coke making and steel plant consumed 112 million tons in 1956. Improvements in coke-making and blast furnace operation are reducing the unit consumption of coke and will dilute the tonnage growth of this market.

The advance in productivity continues, although now at a reduced rate due to concentration on expanding output. Tons per day reached about 10.8 for 1956, compared with 10.3 in 1955 and 9.3 in 1954.

The Pittsburgh Press, Fri., Jan. 4, '57

Consumption per capita in 1956 showed a gain of eight per cent over the 1955 volume and a climb of nearly 30 per cent from the low of 1954.

The utility power market, which has nearly doubled since 1949, will in 1957 become the largest market coal has ever had. The utility coal burn hit 140 million tons in 1955, reached 157 million in 1956, and is expected to grow to 169 million tons in 1957.

Rubber Tires at Work

NOW IS THE TIME HIGH PRODUCTION,

More coal is needed, more coal will be sold. But will you get your share of the profits in 1957? One of the easiest ways to increase your strip production and boost profits is to use the economical 320 HP Cat D9 tractor.

You can help reach the expected 25 million ton increase this year and retain a higher profit merely by using more productive, more efficient equipment—the Cat D9!

We've got all the facts and specifications, but better yet, we'll demonstrate on your job if you are sincerely interested. Call or write us today. Time and profits are slipping by!

Howard A. and Blanche R. Spencer of Clearfield, Pa., move 12-14 yards per blade load with D9 at Olanta, Pennsylvania.



Coal production for 1957! TO INCREASE YOUR OUTPUT with LOW OPERATING COST CAT D9 TRACTORS

Read what a few **D9** owners have to report:

"We plan on an increase in production of approximately $\frac{1}{3}$ by purchase of the D9. We haven't had it long enough to know for sure, but believe we will do better than that! We've always used Caterpillar equipment because we know it does more work at a more economical rate. When we need service, we get the best from our dealer."

"The D9 will make it possible for the so-called 'small stripper' using 3-yard draglines and shovels to extend the life of these small stripping units. For example, a D9 working ahead of a 3-yard dragline will move 9 yards of dirt in the same time as it takes a 3-yard dragline to make a complete swing."

"The D9 is doing more than we expected when we bought it. We've increased our production by 1500 tons per month. Our going is rough, too. We are in the second cut now and even so our production is up."

"This is a wonderful piece of equipment for moving dirt. I thought I had the best possible with my D8, but the D9 is moving a lot more dirt and is easier on the operator."

"I think the D9 is a very fine machine. It is well balanced; easy to operate; will do any jobs that the smaller tractors will do and a lot of jobs that they won't do."

"This Cat D9 moves about 5000 yards every 18-hour working day. I've been running strip mines for 18 years, and find that there's less trouble and more hard digging with Caterpillar-built equipment than with any other."

"I have found Caterpillar is more dependable and has much less down time than any other equipment I have ever owned. This D9 is the most powerful and efficient tractor I have ever owned."

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REPORT on new shovel-crane standards:
(one in a series)

Power hydraulic controls provide fast, positive response . . . make the operator's job so easy that he's not subject to end-of-the-shift letdown. He's actually enthusiastic about pushing the ma-

chine to its high limit all shift long. "It sure is easy to operate . . . has all the power it needs," says the operator of this contour-stripping 1½-yard K-370 owned by B. G. & M. Coal Co., Manchester, Ky.

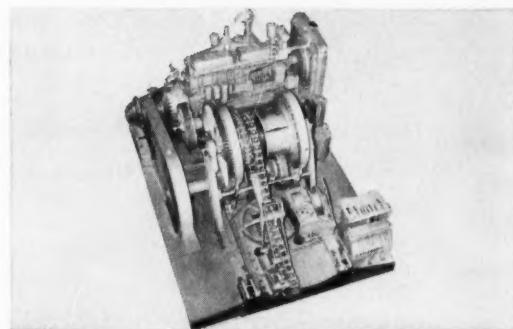
Gaining a BIG power bonus

Link-Belt Speeder shovel-cranes now deliver more usable horsepower than other machines with the same engine

Why? Because a Link-Belt Speeder is engineered for extra-structural strength to take full advantage of the engine's available horsepower and still remain well within engine manufacturers' recommended speeds. For example, Model X when run at 750 rpm develops 125 hp . . . at 950 rpm it develops 150 hp!

Thus, with a Link-Belt Speeder on your job you've got more usable power—extra power to sock the dipper into the bank, come up with a full load. And you've more power, to hoist, swing and travel.

And bonus horsepower is but one of many reasons why Link-Belt Speeder owners have been able to completely revise and upgrade their standards of shovel-crane performance. Why not see your Link-Belt Speeder distributor for the complete story or write Link-Belt Speeder Corporation, Cedar Rapids, Iowa.



Size and strength of components

In a Link-Belt Speeder you'll find big, extra-strength shafts, clutches, gears and other components . . . units easily able to handle the extra power the machine's engine develops. Result—more production and yet lower cost of maintenance and service . . . less downtime, more work time.

14.327

It's time to compare . . . with

LINK-BELT SPEEDER

Builders of a complete line of shovel-cranes . . . with exclusive Speed-o-Matic power hydraulic controls

COAL

Vol. XXXIV February, 1957 No. 2

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Published by

Modern Mining Publishing Company

4575 Country Club Drive, Pittsburgh, Pa., Phone TU. 1-9411

P. F. JASIK, Publisher and Editor

Philadelphia Representative

PAUL S. KEISER, 1729 Ridgeway Road, Havertown, Pa.

Printed by

ADVANCE PRINTING & LITHO CO., INC.

1118 Chestnut Street

Erie, Pa.

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U.S.B.M. APPROVED PORTABLE PUMP

70 G. P. M. 20 Ft. T. D. H.

¾ H. P. 550-230 Volt D. C.

Overall Length, 30" & 50"

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• J. P. Routh, Chairman of the Board, The Pittston Company, predicted a very great future for America's coal industry. In an address before the New York Security Analysts, Routh stated that a new export market of potentially 100 million tons annually is being opened for the coal producing region of the Virginia, West Virginia, and Eastern Kentucky area.

The Pittston chairman, whose company receives about 60 percent of its earnings from coal mines, stated that American coal production should reach from a minimum of 800 million tons to a high of a billion tons annually by 1975. In 1947, U. S. coal production was slightly over 600 million tons. During the seven years following through 1954 coal production fell to 390 million tons as the industry lost a third of its markets primarily due to dieselization of the railroads and the inroads of oil and gas for domestic heating.

"The coal industry will continue to have competition from oil and natural gas and perhaps eventually nuclear reactors. I believe the industry will meet such competition through startling developments in automation," he pointed out.

American output has risen from 7 to 11 tons per man per day during the past

five years. This compares favorably with European production of less than 1½ tons per man per day. Pittston has installed machinery that is "averaging approximately 45 tons per man per shift in one of our new mines," Routh described. He continued by pointing out that "60 percent of the cost of coal is



J. P. Routh, Chairman of the Board,
Pittston Co.

labor and the industry is making tremendous progress in recent years by increasing productivity to offset the increasing wage scale."

"I believe the day will come when the source of all energy, including oil, gas, and nuclear reactors, will be based on a foundation of coal which will be processed to produce economically oil, gas, and raw materials for a great new chemical industry . . . it may well be that the terrific heat generated from the atom will hasten the day of economically gasifying and liquefying coal," Routh predicted.

Routh believes that the large amounts of capital required for new machinery and the development of new mines will result in many mergers and acquisitions in the coal industry. "I feel that over the next 20 years there will emerge from the some five to six thousand coal producers today perhaps 10 to 20 strong companies producing the major portion of bituminous coal," he stated.

Routh estimated that Pittston's earnings for 1956 would be about \$6.00 per share. This compares with \$3.06 per share in 1955 based on the company's capitalization after last year's merger of the Clinchfield Coal Company with Pittston.

SALEM "HERCULES" AUGERS FOR ELECTRIC DRILLS

Made To Withstand High Drilling Speed Whip And Torsional Strain Of Electric Drills



Drills holes faster - Will not snap off shank or chip points - Outlasts four or five ordinary augers.

THE SALEM TOOL COMPANY

SALEM, OHIO, U.S.A.

Published monthly by Modern Mining Publishing Company. Publication Office—Advance Printing & Litho Co., Erie, Pa. Editorial and Executive Offices, Erie, Pa. Pittsburgh Office: P. F. JASIK, Publisher, 4575 Country Club Drive, Pittsburgh 36, Pa. Price: In the United States, \$3.00 per year; all other countries \$5.00. Single copy 25 cents. Entered as second class matter at the Post Office at Erie, Penna., under the act of March 3, 1879.



Rugged Stripping Conditions?

On the Tough Jobs You'll Find Manitowoc!

When rough stripping conditions keep your balance sheet light on the profit side, look to the big capacity Manitowoc Model 4500 for economical coal stripping. For stripping operations that pay off you want a machine with a relatively low investment; that can be easily assembled and serviced by ordinary mechanics, far from metropolitan areas; and one that is mobile enough to move easily from one isolated job site to the next. With the Manitowoc Model 4500 you get all these advantages plus the big capacity production of a 5½-yd. shovel or 6-yd. dragline.

Ready For Rugged Conditions

Rolling, rocky terrain having steep grades and overburden of various depths is typical rugged stripping country. Here's where a Manitowoc 4500 really earns its salt! That's because a 4500 will handle unusually steep grades easy as a "cat" . . . and it has the long reach and steady stability to eliminate excessive re-handling of overburden.

Superior Features For The Tough Jobs

With the Manitowoc 4500 you get a big production unit having the speed and mobility of a small rig.

6-Yd. Manitowoc Model 4500 dragline strips overburden 7 days a week for Jenkins Coal Company, Earlington, Ky.

Unmatched stability assures a long reach at full bucket capacities with less ground pressures. Elimination of several electric motors and miles of intricate wiring and connections affords more efficient utilization of power. No trailing cable to restrict mobility on the job — allows operations far from power source. Transport between jobs on railroad cars or highway trailers is simple and fast — days shorter than units of comparable capacity. Available as 6-yd. dragline and 5½-yd. shovel with standard or high-lift booms.

Your Manitowoc distributor has all the facts on the profit-making 4500 — see him now for the full story. **MANITOWOC ENGINEERING CORP.** MANITOWOC, WIS.

BASSLER EQUIPMENT CO.
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Do You Know?

• Double the amount of money we now spend for scientific research and we can get back "the greatest bargain the American people have ever had." This is what Nobel Prize winner Dr. Glenn L. Seaborg of the University of California at Berkeley told the Society of Chemical Industry.

On hand to receive the 51st impression of the Perkin medal, awarded to Dr. Seaborg by the Society in recognition of achievement in American industrial chemistry, the Nobel Laureate spoke of universities and basic scientific research.

Claiming in his acceptance address that universities now are and will remain "the natural center for basic research," Dr. Seaborg had these suggestions to offer:

1. Lump sums of money should be made available to the "general university budget" by outside sources for "administration in the manner traditional to university research, rather than disbursed piecemeal to small projects bearing specific titles."

2. Means must be found of attracting more people to the university who are capable of creative thinking.

3. Universities should try and gain financial support for creating more positions which "are comparable to that of professor, in freedom, prestige and tenure."

4. There is a drastic need for personnel to support investigators in their work, and for service facilities to aid the creative scientists on the campus.

• Workers with "child minds in adult bodies" who cannot face up to adult responsibilities account for a great part of the country's time lost from work, Dr. N. Gillmor Long, Lumbermen's Mutual Casualty Company, reports in the journal of Industrial Medicine and Surgery (Dec.)

These "drone bees of society" cost industry and the public an estimated \$180,000,000 per year, Dr. Long reports.

His list of "drone" type workers, those that came under the title of "goldbricks" in the army, includes those who hate society in general, those who are occupationally square pegs in round holes, and those who are emotionally inadequate through frustration either at home or with fellow workers. They get relief by taking a day off now and then, reports Dr. Long.

One large group is made up of workers who feel they are not paid enough or are "too good for the job," Dr. Long reports. Another type of absentee is one whose wife and unmarried family members bring in a substantial income. This type will "knock off" a day occasionally to go fishing, says Dr. Long.

By careful charting he has also found a group of Monday or Friday offenders, who think the company owes them an extra day or so.

One absentee worker can ruin a whole department, Dr. Long believes. Fellow workers quickly get dissatisfied when they see their co-worker "flitting about town on his self-selected extra days off." It is a real case of one rotten apple spoiling the barrel, reports Dr. Long.

HERE AND THERE IN THE COAL INDUSTRY

• Femco, Inc. has announced the appointment of five district sales managers.

James Beaven will manage the southern U. S. Industrial area; John W. Bauer, Jr., western Pennsylvania; John Taylor, Cleveland, Youngstown, Buffalo; Addison Davidson, Jr., eastern U. S.; and Warren C. Sprague, west coast.



JAMES BEAVEN

The firm manufacturers electronic communication and control systems for industry. Main offices and plant are located at Irwin, Pa. All of the men promoted to the newly formed sales posts have been Femco employees for from 6 to 9 years.

• Election of E. B. Leisenring, Jr., as vice president of Stonega Coke and Coal Co., and of three other companies, is announced by Ralph H. Knod, chairman of the board of Stonega, at Philadelphia. Mr. Leisenring, who has been serving as assistant to the president of Stonega, was named vice president also of The Virginia Coal and Iron Co., Westmoreland, Inc., and Westmoreland Coal Co.

• The Cherry Hill Coal Corporation, with headquarters in the Marshall Building, Cleveland, Ohio, has purchased the Gay Coal & Coke Company of Mount Gay, Logan County, West Virginia, with assets valued at \$1,250,000.000. This fifty-year old company, the first to equip large, deep mines with mechanical loading machines, produces high-grade steam and by-product coal.

Average production of the Gay mines is 35,000 tons per month. In 1956, nearly 400,000 tons of coal were shipped by this company.

• The Jeffrey Manufacturing Company, Columbus, Ohio announced the appointment of Russell W. Knod as General Manager of Sales, Mining Division. Previous to his recent assignment, Knod was Manager of field offices, Mining Division. He succeeds A. R. Anderson who retired Dec. 31, 1956. Knod has been with the Jeffrey Company 21 years.



Russel W. Knod, General Manager of Sales, Mining Division, The Jeffrey Mfg. Co., Columbus 16, Ohio.

Anderson, who served 35 years at Jeffrey, was General Manager of Sales, Mining Division for the past three years.



MORE TRAINED BRAIN POWER NEEDED FOR OUR SURVIVAL

Advancing technology is leading to sweeping social and cultural changes in all fields of endeavor with a possibility of virtually all wage earners needing a college degree. Leaders will be only those whose thinking will be broad and unhurried, whose horizons will be wide enough to comprehend the world in which we live.

Resources of trained human brainpower in engineering and science are of crucial importance to man's destiny. It appears that we only dimly

perceive the extent to which this is true and are by no means taking the necessary steps to encourage the development of that badly needed brainpower.

The United States is the largest group of men on this earth in terms of physical well being, material comfort and opportunities for social and intellectual development, but it is not leading in the number of science and engineering students at this time. Development of our public school sys-

tem, growth of our private and state institutions of learning played an important role in our history of literate and intelligent group of skilled workers and leadership in professions and in business.

In the past two decades we added the firm establishment of scientific research as an important base element to our industrial system. The importance of scientific and engineering research in our recent developments is incalculable. Our every day life, whether it concerns industry, transportation, communication or our social behavior, depends directly on machinery and products developed in the last decade.

From \$20 to \$50 has been gained for every \$1 spent on research in the

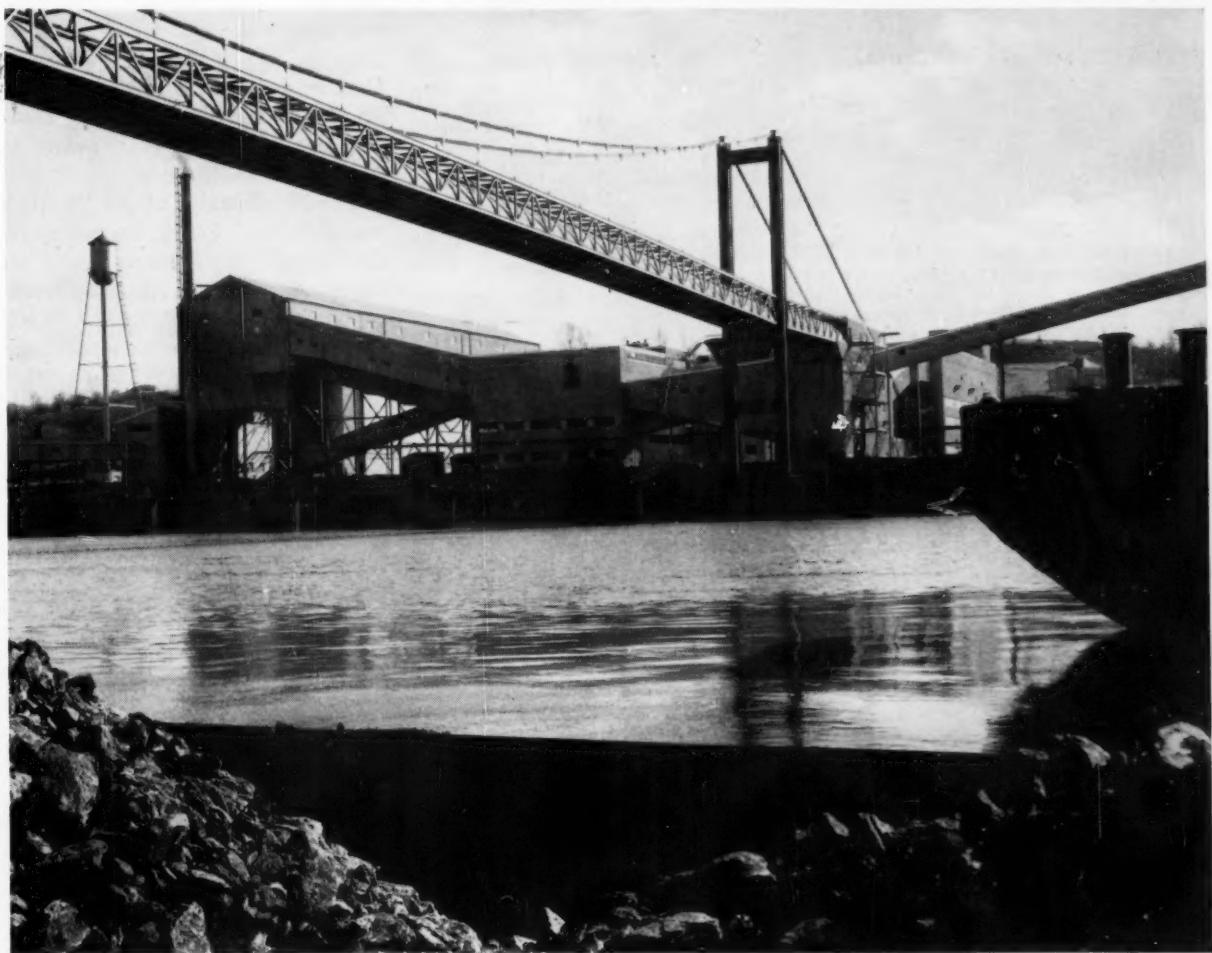
last 25 years. Specialization made it possible for all to enjoy benefits stemming from ideas of a few. When so many owe so much to so few, one would suppose our chief concern would be to accelerate that most important resource, trained brainpower. Many signs say we are not taking the necessary steps to assure our future. We must put scientific and industrial developments on an accelerated pace to maintain our present economy. Basic science must be given strong support. Intellectual geniuses must be discovered, encouraged, trained and rewarded. Technicians must be trained to fill new types of positions in our industry.

The increase in population in the next 20 years means power consump-

tion will go up at a much greater rate. Coal will be used to generate most of the estimated 300 million kilowatts that will be needed by 1980.

We need specialized leaders in all fields by men who realize the value of our civilization and the factors that influence it. We may look forward to many new wonders in the future, but we cannot take it for granted that these things will come to pass and that we will continue to prosper without possible hazards and without preparing ourselves for them. The present prosperity has emphasized the importance of trained manpower to our well being. To neglect the discovery, training and support of intellectual leadership of the future would be perilous.

Vesta-Shannopin Coal Preparation Plant at Vestaburg, as seen from coal barge, foreground. Coal from J & L's Vesta-Shannopin Mines is conveyed across suspension bridge into plant, where it is treated and prepared for shipment by barge down the Monongahela River to J & L's steel-making plants at Pittsburgh and Aliquippa.



FIRST ANNUAL MEETING OF THE

New Independent Mineral Producers Association...



Left: T. P. McCarthy, Watson Equipment Co.; C. A. Lytle, Maximon Machine Co.; Clifford H. Turner, Merle Urey, and Paul E. Turner of E. N. Turner Construction Co.; Sam Maximon, Maximon Machine Co.; Bill Robinson, Attorney; Claude Meadows, Big Valley Coal Co.

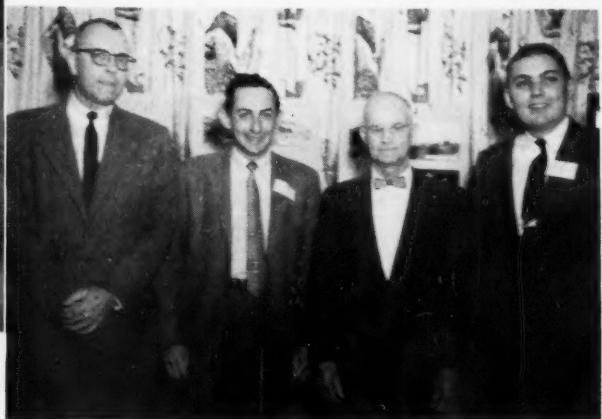
Left: Jake Haneman, Lin-Belt Co.; Louis Donahue, Allegheny Machinery Sales Co.; Geo. E. Glass, Gardner Denver Co.; Robt. L. Wyant, James L. Herberg and Denver W. Newman, all with Allegheny Machinery Sales Co.; LeRoi Cann, Domestic Coal Co.; George Bobo, George Bobo Coal Co.; Edward K. Wright, Anderson Equipment Co.

The first annual meeting of the Independent Mineral Producers Association was held at the Penn Sheriton Hotel, Pittsburgh, Pennsylvania, November 30. This new association is the merger of the two separate associations located in Kittanning and in Butler, Pennsylvania. New headquarters were established at Butler. William C. Altvater is president. William L. Harger, is Vice-President. Franklin H. Mohney is Executive Vice-President and J. P. MacFarlane is Secretary-Treasurer.

The Toastmaster at the Banquet was Robert T. Laing, Secretary of the Central Pennsylvania Coal Producers Association, Altoona, Pennsylvania. The principle speaker was Major Norman Imrie, Editor, Educator and Entertainer. His subject was THE WAY TO WIN.



Left: George Weingard, Bucyrus-Erie Co.; Jim Doyle, Beckwith Machinery Co.; Harry L. Craig, Craig Brothers Coal Co.; Jim Beckwith, Beckwith Machinery Co.





Left: Jack Docherty, Highway Equipment Co.; Charles E. Baer and Albert E. Florig, Dept. of Public Health, Penna.; A. C. Chapman, Otis H. Brundage and R. H. Richards, Richards Coal Co.; J. J. Janssen, Highway Equipment Co.; H. Elmer Whitmyre, Whitmyer Equipment Co.; B. H. Todd, American Chain & Cable Co.; James Long, Richards Coal Co.



Left: Clyde Milliken, Sales Mgr., James M. Logan, Salesman Allegheny Machinery Sales Co.; Don Nichols, Asst. Mgr. Gardner-Denver Co.; R. H. Hahn, Gen. Mgr., B. Cornelius, Treasurer, Allegheny Machinery Sales Co.; W. H. Compton and L. Compton of the Compton Coal Co.

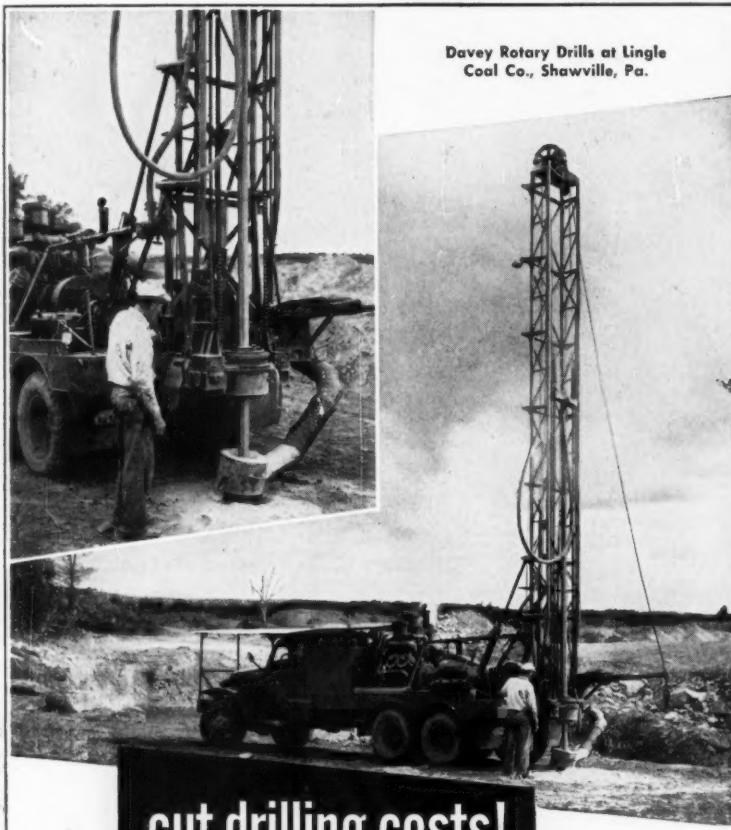
Left: Charles Harbaugh, Sanitary Water Board; W. L. Burgess, The Warnick Co.; Paul R. Boyles, Boyles Coal & Supply Co.; Russell Klingensmith, Mine Drainage Section, Dept. of Health; John P. Durr, Penna. Dept. of Health, Div. Sanitary Engineering; J. R. Harvey, Regional Sanitary Engineering, Penna. Dept. of Health; Howard Warnick, The Warnick Co.



Left: Carmen D. Ambrosia, Ambrosia Coal Co.; Bob Jones, Allied Equipment Co.; J. Barnhart and J. E. Norton, Pittsburgh Coal Co.; Bill Dickey, Beckwith Machinery Co.; John W. Gittins, Secretary, Sanitary Water Board; H. W. Findley, West Freedom Mining Co.; C. C. Amick, Jr., Allied Equipment Co.



Left: Duane Snyder, Beckwith Machinery Co.; W. Ahunbaugh, Ahunbaugh Coal Co.; Harry De Simone, Rand Mining Corp.; Paul J. Gallo, Maust Coal & Coke Corp.; Thomas Rosenblatt, Rand Mining Corp.; L. T. "Pete" Peterson, Allegheny Machinery Sales Corp.; Geo. E. McClure, Rand Mining Corp.



Davey Rotary Drills at Lingle
Coal Co., Shawville, Pa.

cut drilling costs!

DAVEY
ROTARY DRILLS

For faster, more economical drilling . . . increased coal production at lower costs, leading strip operators rely on Davey. Suitable for mounting on any make of truck, Davey Rotary Drills move fast between blast holes . . . are ideal for low cost core drilling with air . . . easy to set in drilling position.

Daveys are available in 6 different models—air blast, mud pump, or combination types. Rated capacities to 2,000 ft. Outstanding features include choice of power take-off or separate power unit operation, automatic hydraulic feed, hydraulic pull down, heavy-duty rotary table, rugged tubular box-type mast . . .

AA-1697

Write for full details!

DAVEY

DAVEY COMPRESSOR CO. • KENT, OHIO



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"air-cooled air"



"Auto-Air" Compressors



Industrial Compressors

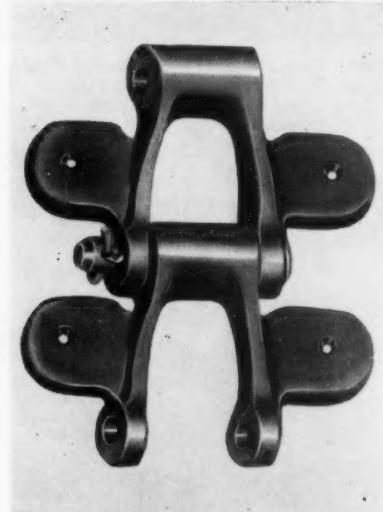


Air Tools

Field Service Units

Rotary Drills

- Steel conveyor chain, each link made with a wing attachment, has recently been brought on the market by Robert A. Main & Sons, Inc., 257 Pascack Road, Paramus, New Jersey. This new pin type chain, made of forged quality steel and heat treated, is manufactured for maximum strength conditions and will stand extra hard wear and shock. It can be furnished for acid or heat conditions using corrosion or heat resistant materials. It is



easy to take apart or assemble due to its simple design. Each link has a wing attachment making it easy to attach wood or metal conveyor slats for all types of duty. It can be used in single or multiple strands. Due to its uniform size, links need not be matched and it is available in standard pitches. Sprockets and complete conveyor aprons can be supplied using this chain.

- The retirement of P. E. Ebert as vice-president in charge of sales of the Sunday Creek Coal Co., Columbus, Ohio, was made at a recent board of directors' meeting. Mr. Ebert, who has completed twenty-eight years with the company, will continue to serve on the board of directors.

Elected to senior vice-president and comptroller was James A. Graham. Joe W. Walker was appointed the new vice-president in charge of sales.



1 BUILDER • 1 BACKER

One builder, Caterpillar Tractor Co., designs, builds and warrants Cat DW21, DW20 and DW15 Tractors. Every major component is Caterpillar-built: engine, clutch, transmission and final drive.

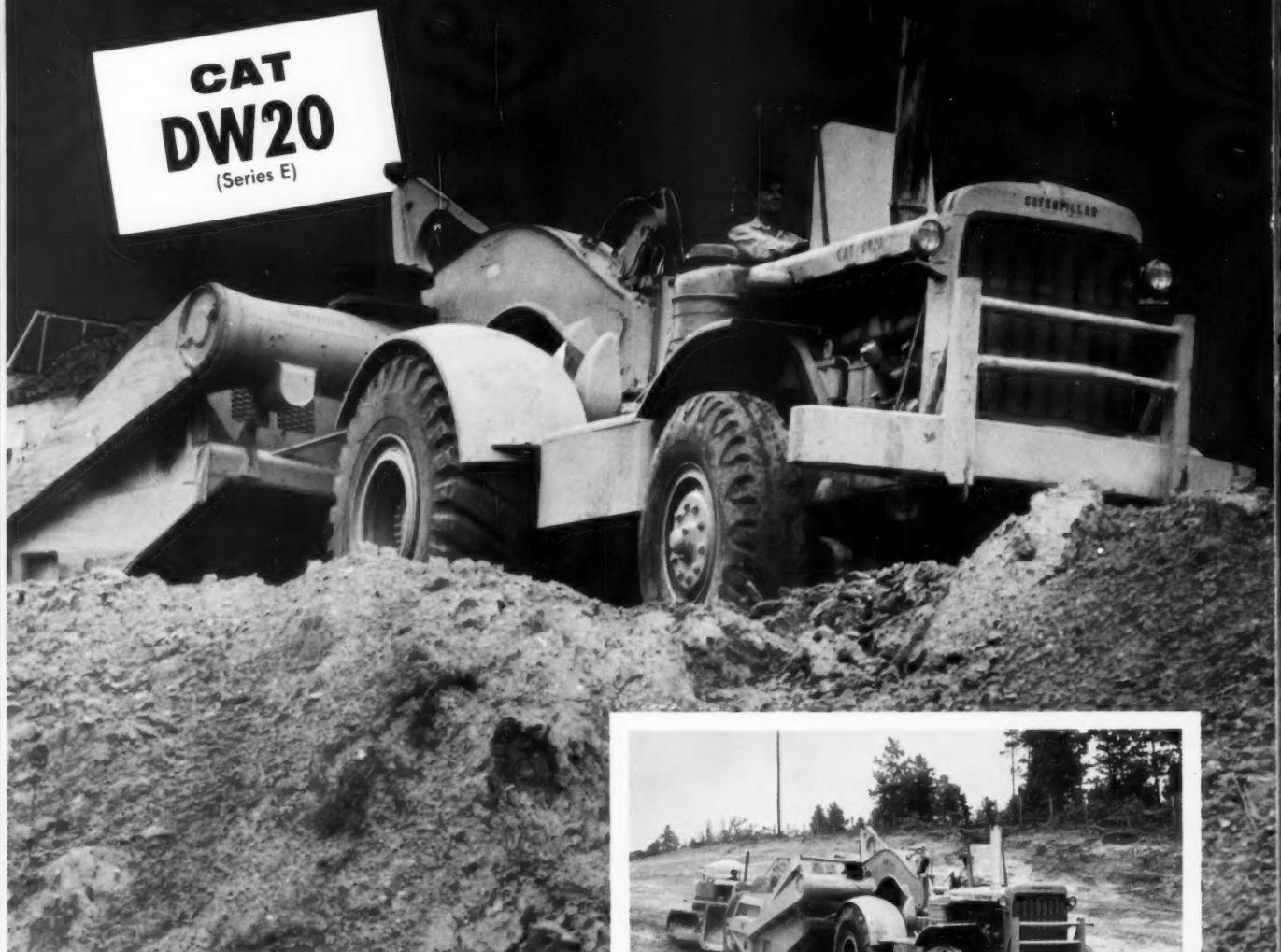
These rubber-tired prime movers have set production records on construction jobs the world over. They are the standard by which others are measured. On your team they will assure you all the advantages of lower costs, more production, more profits—your bonus when Caterpillar builds the entire machine.

One backer, your Caterpillar Dealer, stands behind every Caterpillar product. Responsibility for good performance of the entire machine, as well as attachments and matched haulers, is concentrated at our headquarters. We're ready to back your equipment to the limit, ready with parts and service.

We'll help you select the Caterpillar Wheel Tractor and full line of matched equipment to meet your earthmoving requirements. We stake our reputation on your satisfaction.

A MESSAGE FROM YOUR **CATERPILLAR DEALER**

CAT WHEEL TRACTORS



DW20 SPECIFICATIONS

| | |
|-----------------------------------|--|
| Engine | Cat-built, 4-cycle Turbocharged Diesel, 300 HP* @ 1800 RPM |
| Maximum Rimpull | 31,380 lb. |
| Speed Range, MPH | 2.8—32.1 |
| Transmission | Cat-built, 10 speeds |
| Tires: Drivers, Tubeless Front | 29.5-29 14.00-24 |
| Starting Method: | Choice of 24-volt direct electric starting system or independent gasoline starting engine. |

*Maximum output.



Cat DW20 and 25 cu. yd. (heaped) No. 456 LOWBOWL Scraper.

Cat DW20 with 22.0 cu. yd. (heaped), 30-ton Athey PD20 Wagon.



"HIGH GEAR"

put your job in "HIGH GEAR"

Power Matched earthmovers put power to work at its peak!

The Caterpillar DW20 and DW21 can be teamed with 25 cu. yd. Cat LOWBOWL Scrapers or can be matched to rear or side dump haulers to give the versatility required by today's earthmoving methods.

Powered by 300 HP Turbocharged Cat Engines, these tractors offer you the greatest value of any units in their class. More power and capacity plus the finest in design and construction, bring you increased production and increased profits on your jobs.

Built for rugged duty, but engineered to keep dead weight to a minimum, these units have the power and rimpull to climb steep grades and travel haul roads at high speeds.

They handle like a pleasure car on the haul, are fast and sure-footed on the fill, and the articulated design of tractor and trailer unit makes it easy to maneuver at the cut or under the shovel. Power steering relieves operator of strain and shock, but lets him keep the "feel of the road." Air-boosted clutch and constant mesh transmission make shifting easier and faster, so operators get maximum production. Big synchro-safe air brakes stop the unit almost within its own length at 18 MPH.



DW21 SPECIFICATIONS

| | |
|------------------|--|
| Engine | Cat-built, 4-cycle Turbocharged Diesel, 300 HP* @ 1800 RPM |
| Maximum Rimpull | 38,420 lb. |
| Speed Range, MPH | 2.3-20.5 |
| Transmission | Cat-built, 5 speeds |
| Tires, Tubeless | 29.5-29 |
| Starting Method: | Choice of 24-volt direct electric starting system or independent gasoline starting engine. |

*Maximum output.



CAT DW21 with 22.5 cu. yd., 31-ton capacity Athey PR21.



CAT DW21 and 25 cu. yd. (heaped) No. 470 LOWBOWL Scraper.

MATCHED POWER FROM YOUR

CATERPILLAR DEALER



MORE tractor for your money... MORE profit for your job!

Earthmovers are finding the Cat DW15 a whale of a lot of tractor for the money. On many jobs its amazing speed, power and maneuverability make it out-produce much larger "rated" haulers. Caterpillar-built from engine to final drive, the DW15 brings you the quality design and performance you expect—and get from all Caterpillar equipment.

You'll be amazed at the way this highly maneuverable, powerful tractor can walk away with a big load—can move big payloads fast! Let's take a good look at your spread to see if the DW15 isn't just what you need to make more money.

DW15 SPECIFICATIONS

| | |
|--------------------------|---|
| Engine | Cat-built, 4-cycle Diesel, 186 HP* @ 1800 RPM |
| Maximum Rimpull | 27,330 lb. |
| Speed Range, MPH | 2.3—31.3** |
| Transmission | Cat-built, 10 speeds |
| Tires, Drivers, Tubeless | 21.00—25 |
| Matched equipment | Scraper, rear, side dump trailers. |

*Maximum output. **Optional final drive gears.

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WE ARE YOUR CATERPILLAR DEALERS

IS THE COAL BUSINESS GETTING ON YOUR *Nerves* ?

*...Here's What You
Can Do About It*

By Ernest W. Fair

Even the most successful coal company executive more than once looks across his office and wonders "why the heck" he got into it. At other times he wouldn't trade places with any other business man in his community.

With many of us these periods when the coal business gets on our nerves can occur with great frequency, even where they occur only now and then it's time we did something about it.

One way is to just get out and into any other line of business but few of us really want to take this step. And the chances are good the new field of endeavor would get on our nerves also.

The truth of the matter is that it's not the coal business or our own firm that are responsible for the situation. Usually it concerns each of us as an individual. Our procedure is to do something about it at the very start.

"Find the big cause of trouble," is the advice given by experts most frequently. They point out that in any average business there is usually one single thing causing the irritation repeatedly rather than the business in its entirety. Both doctors and business counsellors point out that the wisest step you or I can take is to look for that

cause of irritation right then and there.

In many instances the executive will not have to look for the big trouble maker — he knows good and well what it is all about — it's a problem he hasn't been able to lick in the past and can see no probability of an immediate solution being found. In such a situation, unless he does something about it, that business is going to do much more damage than get on his nerves.

What can he do about it? We've asked a number of coal executives with whom we've talked during the past year how they went about solving the very same problem themselves. Their combined suggestions boil down to these three:

a) "Quit trying to solve the problem yourself — go to someone who has the ability to solve it and get the load off your mind. The chances are that only sheer blind luck is going to solve it for you if you don't for you've been trying for a long time to do the job alone. Give it up and call in someone for help."

b) "Take a week off and hop into your car — then travel over your immediate area and talk to other coal company executives. Without a doubt you'll find several



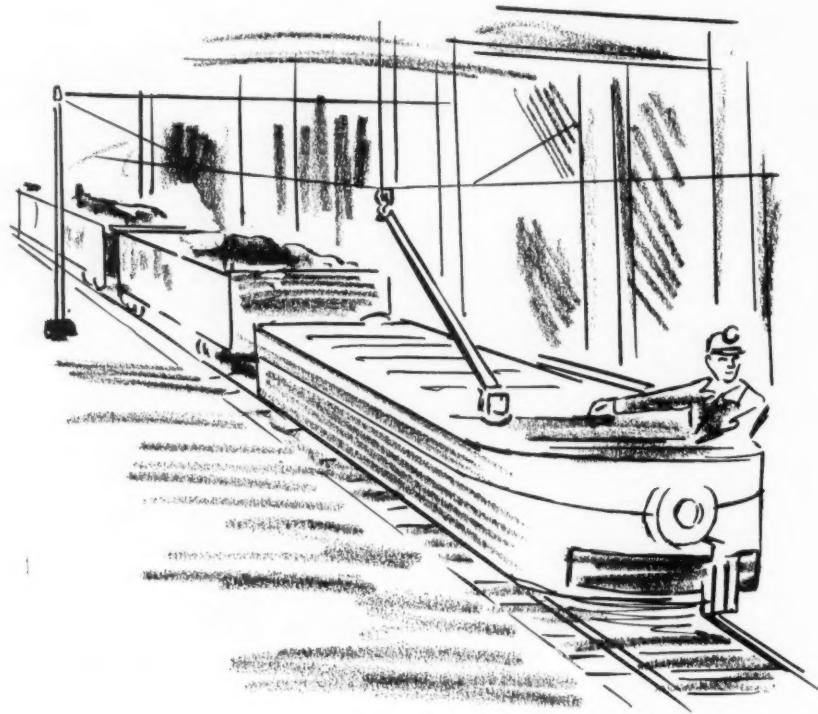
who were confronted with the very same problem themselves and found a satisfactory solution. Maybe it will take a little tailoring to fit your specific business but that should be easy."

c) "Call your staff together and go over it with them. You'll be surprised how another viewpoint on the problem will either bring up a solution or set your thinking along the right track toward your destination."

A second step in soothing those jangled coal business nerves is to take a real close look at your own health. The writer has numbered a great many doctors among his friends in the past and we've had many discussions on business men and their health problems. One such comment fits this situation.

"Whenever I have a business man come to me with the complaint that his business is getting on his nerves, that everything seems to go wrong and that he feels maybe I can help him," one doctor told us, "he is bringing the solution right in with his own words.

"I'm sure that at least half the men who suffer from such a business situation have nothing to blame but their own health and physical condition. They've suffered a gradual health deteriora-



tion that has been so slow it never became noticeable until a breaking point arrived. Usually it manifests itself in the form of business nerves.

"When that happens it's not hard to get back on the right track. That check up with the family doctor will reveal just what's wrong with the business man rather than the business."

All of the routine details of operating a business, which never bothered one before, can under conditions of sub-par health irritate any man's nerves to the point where he wishes he had started his business life in some other field. The step to take is to remedy the health mal-functions and get back that alertness, interest and pep we had to build our business to where it is today and during none of which time it "got on our nerves."

This brings up another point. We remember one man with a most successful business who one morning asked us if we knew of someone who might be interested in buying

his business. In answer to our astonished queries he explained that he was fed-up with the coal business, i.e., that it no longer held any interest for him.

Success can do that with many of us. Our real interest and pleasure comes in building a successful business rather in operating one that has attained the top spot in our area. When the high rung on the ladder is reached our "fire" dies down and the things which used to be an interesting challenge to us become dull, uninteresting and nerve arousing.

Our foregoing friend solved his problem by launching and building a second business, then a third, etc., and today he is having more fun out of life, making more money than he needs and is so sold on the coal business he will never admit he was once in the position mentioned above.

Getting away from the business for a short period of time is another good way of handling this nerve problem. Too few executives

take two or three vacations a year from their business and many even forego a single vacation. Staying with a business day-in and day-out, month after month, is a sure way of building up a case of nerves to the point where we will actually hate the whole thing.

Every individual needs such rest and relaxation from his business problems. He simply cannot maintain his alertness, interest or calm nerves with his nose to the grindstone. That was once a business credo but in those days business was primarily routine founded on a basic set of principles. It isn't any longer — today's problems are supplanted by new ones tomorrow — the pace is much rougher. And the rougher the pace the harder toll it takes on the executive's nerves. They too need relaxation and a vacation away from the business.

We've noticed the coal industry executives among our friends who have never been troubled by such cases of business nerves are nearly

always the men who manage to take a week off at least twice a year and a week end away from the business whenever the opportunity presents itself.

It's also a good idea to cut down on the full time daily job. The coal business encompasses a lot of hours out of every day of the week. It is a hard task mistress who gives us little time for anything else if we keep ourselves tied to her apron strings.

Getting out of the business every day and doing something else if nothing more than calling on other business men helps to keep such anti-coal business nerves from arising up. Anything we stay too close in contact with can jangle the nerves of the calmest man among us.

Relaxing with outside interests also helps us get back the proper perspective. Have you ever noticed that the business men who play a round or two of golf a week, bowl or have some other recreation of particular interest to them, are men who never complain about the

business they are in getting on their nerves?

There are sports and similar outside interests for all of us no matter how or where our tastes may lie, no matter how rich or poor we may be or how young or old our life spans. And there isn't a coal business going today, large or small, that won't keep right on doing business if the boss leaves it for an hour or two now and then.

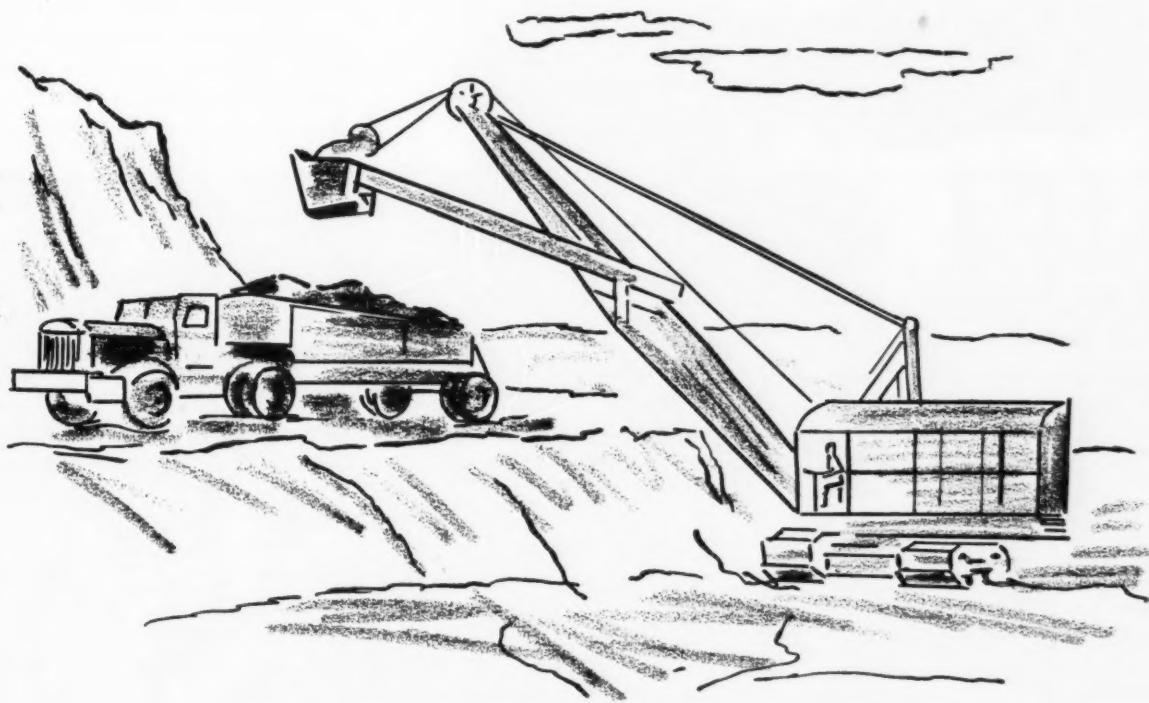
It's also good procedure, many successful business men have told us, to develop a set of safety valves to control those instances within oneself. Many times irritation itself which we believe has been caused by some phase of the coal business was really incited by something else in our lives. If we learn to develop those safety valves for release of such emotions the business will appear much more attractive to us every day of the week.

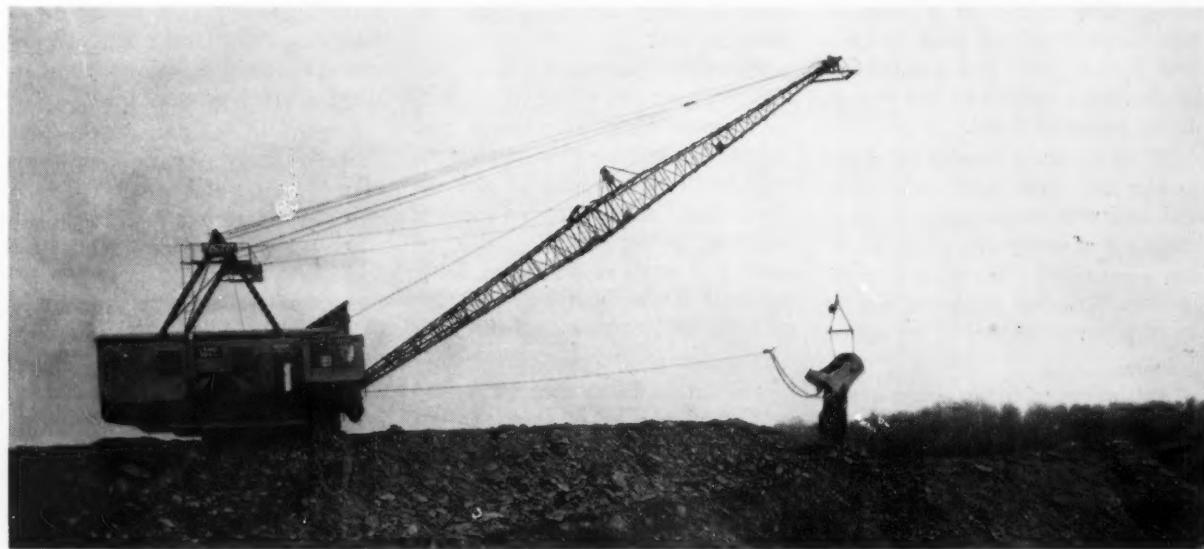
That takes a lot of self training and doesn't come easy. Never permitting any distasteful situation in our lives to stay with us for more than a few moments after it has

occurred is one such safety valve. Carrying these irritations around ruins all perspective we have toward everything else.

Control of temper, development of tolerance, forcing ourselves to stop activity and relax regularly and similar steps all fall into this safety valve category. It's just as important that we have one of these on our own "personal machine" as that there be one on a boiler. Both are there for the same purpose — to blow off that extra head of steam.

There's nothing wrong with the coal business today — in fact it's far more interesting, more profitable and more fun to be in than it was ever before. When it gets on your nerves or mine we can be sure it's not the coal business but ourselves causing the irritation — and right then and there is the time to re-check the foregoing suggestions and apply them to keep from ruining the perspective that has helped to build ourselves a place in one of the finest fields of business in the land today.





The Bucyrus-Erie Model 200 dragline moving high overburden.

Modern Stripping **AT THE** *Craig Brothers*



The Craig Brothers are old stipers of the Pittsburgh seam coal in Washington County, Pennsylvania. Present operations are located near Frankfort Springs a small community which is served by state and county roads and where the coal is prepared to meet a trucking trade.

Stripping is done with Bucyrus-Erie equipment which consists of one Model 200 dragline having 125 foot boom and 6 yard bucket, which is the principle stripping unit, a model 37-B dragline that works

Over-all view of the McCarthy Highwall Auger. Note Auger platform at right.





Showing the heavy metal guard attached to the unit at the auger head.

Four inch Jeager water pump working in pit.



with the Model 200 and a 44-B combination unit.

A new 42 inch McCarthy high-wall auger has recently been installed to recover coal that is not strippable. A strong guard, made of H-beams and heavy wire mesh has been built at the auger head to prevent damage from rock falls from the highwall. Augers are kept on a rubber tire platform which is attached to the auger unit thus moving the augers as the unit moves.

Office, left, and the coal preparation plant. All output is trucked.



• THE NEW DeKOVEN MINE DOCK



This 42-inch-wide conveyor loader will load 1000 tons of coal an hour at the new DeKoven mine dock. Fourteen barges — seven full, seven empty — can be handled simultaneously at the Dravo-built dock.

Facilities of the new DeKoven mine of Pittsburg & Midway Coal Mining Company, Pittsburg, Kansas, were designed to take full advantage of economical river transportation. Coal from the DeKoven mine, which is located at Sturgis, Ky., on the Ohio River, is carried by conveyor belt more than two miles from mine slope to loading out dock.

Built by Dravo Corporation, Pittsburgh, Pa., the dock permits loading operations at any river stage. It consists of 11 steel sheet pile cells rising 50 feet above normal pool and driven to rock. Two 20-foot diameter cells and one 16-foot diameter cell support a 1000-ton per hour loading conveyor, which is hinged so that it can be adjusted to discharge into barges at various river elevations.

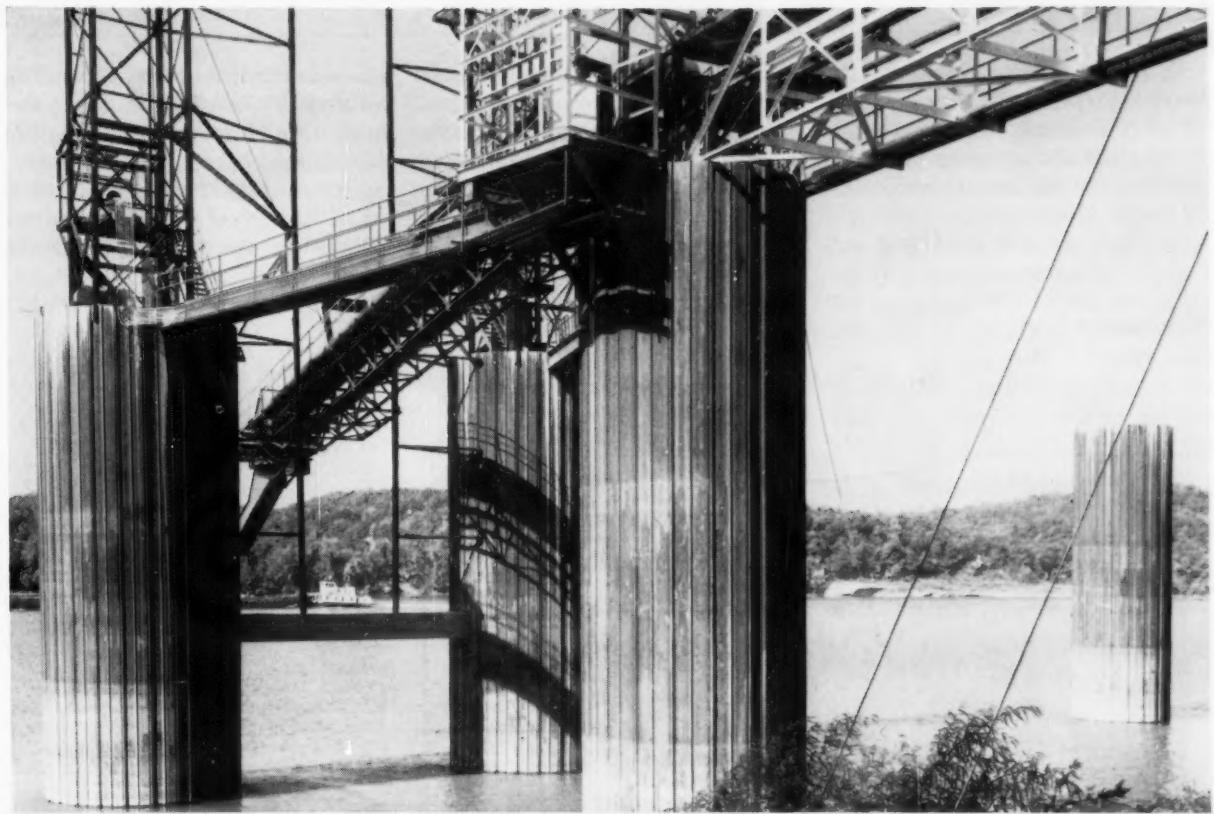
Extending 1175 feet along the shoreline, the dock is designed to handle seven loaded and seven empty barges. Two of the cells support a mechanism which shifts the empty barges into position under the conveyor and then moves them along to be moored at the other end of the dock.

Three cells at either end of the dock are used to moor the empty and loaded barges. All cells are filled with sand and gravel and capped with reinforced concrete.

More than two miles of 42-inch wide conveyor belt carry the coal from the mine slope to the dock. The conveyor-type loader is 100 feet long.

Although the first barge load of coal left the dock in mid-September, the mine is currently producing at only half its capacity. By 1958, officials of Pittsburg & Midway Coal Mining Company estimate, the mine will be turning out 100,000 tons of coal per month.

Current production is going almost entirely to the Joppa Steam Electric Station at Joppa, Ill., but the remaining half of the mine's capacity will go to a variety of other consumers. Fourteen or fifteen barges per week are presently being loaded at the dock.



Top: Closer view of coal loader at DeKoven mine dock shows two 20-foot diameter, one 16-foot diameter steel sheet pile cells which support it. Loader is hinged so that it can be raised or lowered, depending on the water level.

Bottom: Flood waters pose no problem at this steel sheet pile cell coal-loading dock on the Ohio River, above Caseyville, Ky. The dock, which is serviceable at any river stage, was built by Dravo Corporation for the DeKoven mine of the Pittsburg & Midway Coal Mining Company, Pittsburg, Kansas.

• Two new tractor-mounted rippers designed to speed bulldozing and loading operations have been added to the growing list of Caterpillar products, according to an announcement by Caterpillar Tractor Co.

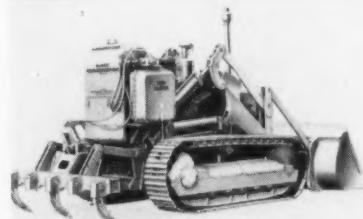
The largest of the rippers, designated as the No. 6 Ripper, is designed for use on the Caterpillar D6 Tractor and the Caterpillar No. 977 Traxcavator. The smaller model, known as the No. 4 Ripper is designed for use on the Caterpillar No. 955 Traxcavator.

When mounted on the No. 977 and

No. 955 Traxcavators, the rippers are operated by standard hydraulic controls, by making use of a separate valve and control lever mounted on top of the hydraulic tank. When the No. 6 Ripper is used with the D6 Tractor, it is hydraulically operated by the No. 46 or No. 44 Hydraulic Control and a separate hydraulic cylinder. When operating with a D6 Tractor equipped with angling or straight bulldozer and a No. 46 Hydraulic Control, a cross-over valve must be installed.

Three alloy steel teeth with re-

placeable tips are normally installed, but provision has been made for the installation of two additional teeth, should they be desired. The new rippers are rugged enough to permit the full power of the tractor to be absorbed by one tooth at maximum penetration.



The newly-announced No. 4 Ripper is designed to be used with the Caterpillar No. 955 Traxcavator. Incorporating the feature of parallel linkage, the ripper teeth are maintained at a constant working angle, regardless of the depth of penetration. Use of the ripper will result in lower maintenance costs, particularly on cutting edges and bucket teeth, and easier loading.

One of the outstanding design features of the new rippers is the parallel linkage which is used to maintain the same angle of penetration at all depths. The use of this type of linkage permits good ripping action at any depth of tooth penetration in addition to protecting the hydraulic system by reducing cylinder pressures created while ripping.

The excellent maneuverability typical of Cat Diesel Tractors and Traxcavators is maintained with the new rippers. When the carriage bar is fully raised, the parallel linkage brings the teeth up close to the tractor, thus reducing over-all length to a minimum.

Excellent ground clearance is also built into the new rippers. When the ripper is fully raised, sufficient clearance is obtained to permit climbing a 30 deg. ramp without striking the ground with the teeth. Additional clearance can be obtained by installing the teeth upside down.

A simple method of ripping directly to the edge of a vertical wall or bank is provided by installing the ripper teeth backward and ripping while backing up. Points of the new rippers are interchangeable with those used on the Traxcavator buckets.

Use MacWhyte Wire Rope on Your Toughest Mining Job-It's Made To Meet Your Needs!



NORTHEASTERN

and

ZANESVILLE SUPPLY COMPANIES

are also headquarters for **Jeffrey** chain and conveyors, **Diamond** roller chain and sprockets, and all types and sizes of brake lining and friction material.

NORTHEASTERN SUPPLY CO.

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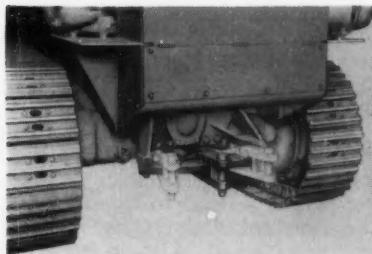
- Two new product improvements have been recently announced by Caterpillar Tractor Co.

One is an improved cab for use with Caterpillar DW20 Tractors, and the other is a swinging drawbar designed for mounting on the Caterpillar No. 933 Traxcavator. Both improvements are being offered as optional product attachments.



This new cab for the Caterpillar DW20 Tractor has been recently made available as an attachment. Designed with the operator in mind, the cab provides comfort and protection when operating in extremes of weather.

The new DW20 cab, designed with the operator in mind, provides protection and comfort when operating in extremes of weather. The insulated cab top affords protection against heat in summer and cold in winter, as well as reducing vibration and noise. A swing-out windshield provides 3-way ventilation. Newly designed door latches guard against vibration, and at the same time offer easy access to the cab.



Recently made available for use with the Caterpillar No. 933 Traxcavator is this five-position swinging drawbar. Its use affords drawbar versatility comparable to that of the Caterpillar D2 Tractor.

The new 5-position swinging drawbar for the Cat No. 933 Traxcavator can be used to tow various types of trailing equipment. It gives the No. 933 drawbar versatility comparable to that of the

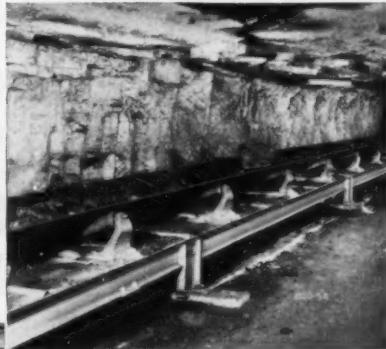
Caterpillar D2 Tractor. Center of the drawbar clevis is 14 $\frac{3}{4}$ " off the ground, and the drawbar has a swing arc of 16 $\frac{3}{4}$ ".

- Structural features of the Allis-Chalmers HD-6G Diesel powered tractor shovel are discussed, and the shovel hydraulic system of this tractor shovel reviewed, in the new two-color, eight-page catalog (MS-1101) now available from the Construction Machinery Division.

Allis-Chalmers Manufacturing Co., Milwaukee, Wis.

Photographs, drawings and charts help convey to readers the HD-6G's story of high output, long life, easy, time-saving servicing and show the features built into the unit for operator comfort and safety. Also included are specifications and listing of interchangeable matched attachments designed and engineered to the HD-6G to increase its versatility and performance capabilities.

**by "buggy"
and by belt
JEFFREY
IS YOUR
BEST BUY**



Jeffrey 80-A Belt Conveyor for heavy duty main line service.



Jeffrey MT66 Shuttle Car, built in basic heights 30" to 42".

From coal face to mine tipple, coal gets a faster, more economical ride on Jeffrey shuttle cars and belt conveyors.

Jeffrey builds a complete line of powerful shuttle cars in 24" to 54" basic heights. They are designed for rugged service, high capacity and easy steering under every mine condition.

For belt conveying, Jeffrey manufactures three types of sturdy head sections and three types of strong frames to give nine basic combinations of underground conveyors. One of these is suited to your exact needs for high-tonnage handling at low cost.

Write Mining Sales Division, The Jeffrey Manufacturing Co., Columbus 16, Ohio.



MINING • CONVEYING • PROCESSING EQUIPMENT
TRANSMISSION MACHINERY • CONTRACT MANUFACTURING

Three new pieces of literature are available from the Construction Machinery Division, Allis-Chalmers Manufacturing Co., Milwaukee, Wis.

Usage information of the HD-11G and the HD-6G Diesel powered crawler tractor shovels highlights MS-1137 and MS-1126, respec-

ly. The matched attachments designed specifically for each model are shown both through line drawings depicting them in action, and with catalog views.

The four pull-type scrapers in the Allis-Chalmers Construction Machinery line are featured in the third piece of literature . . . MS-1149. Each scraper model is shown in action. Catalog views of each model scraper, and illustrations of some of the design features of the Allis-Chalmers scraper line highlight the literature.

- New carbide-tipped bits and special block holders, which are reputed to increase the efficiency of barrel-type coal recovery auger heads while reducing bit costs and changing time, are announced by Austin Powder Company, Cleveland.

Provided with precision-made tapered shanks, the bits drive-fit into the conical holding devices of the blocks. When cutting pressure is exerted, bits become firmly seated. Because no lugs are needed, vibration and chattering with resultant shank breakage are virtually eliminated.

M A N I T O W O C
stripping Shovel, Model 3500, with 35' Boom,
27' Stick, 2 Yd. Dipper, Caterpillar D-1700 Diesel Engine. Located in Ohio. PRICED TO SELL.

ANDERSON EQUIPMENT CO.
Box 1737 Pittsburgh 30, Pa.
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SCOTTDALE MACHINE, FOUNDRY & CONSTRUCTION CO.

DEPT. CM

BOX 51

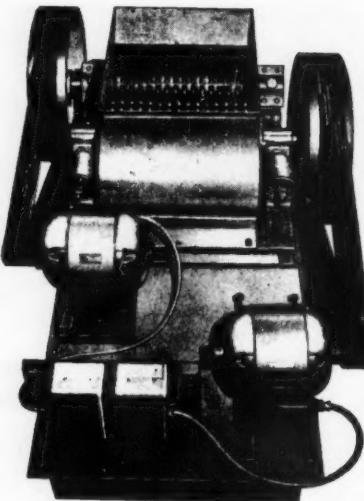
SCOTTDALE, PA.

DOUBLE ROLL COAL CRUSHER

EFFICIENT . . . produces a more uniform product!

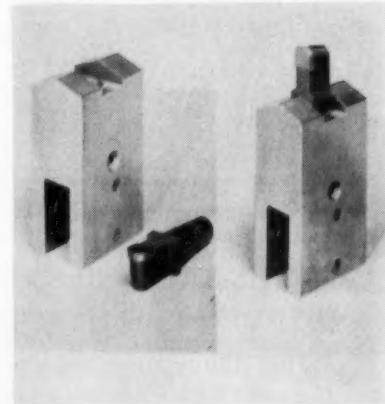
ECONOMICAL . . . uses less power!

BOOSTS . . . sales—profits!



NO. 63 SPECIAL — 2 Motor Drive — Produces a Product $\frac{3}{4}$ " to 8". Equipped with Two Grooved Flywheels. (No Gears)

Efficient and practical the shredding action of the crusher's tooth studded double rolls turns out a more consistent product. Quality produced forged steel tooth gears, welded steel base, bronze bushed journal bearings, welded steel hopper and grooved flywheels.



New Austin carbide-tipped bit and block holder for barrel-type coal recovery heads.

New Austin bit with tapered shank drive-fit into positive holding device for special block holder.

According to Austin, all 21 bits on the outer cutting circumference of a 42-inch machine can be changed in approximately 3 minutes, using only a hammer and punch. Consequently, it is claimed that cutting tools can be replaced and the auger machine put back in operation in about 10% of the time required with ordinary bits.

Block holders have 4 Allen Head screws to permit accurate positioning on the drill head prior to welding. This is said to assure equal and constant distribution of total load on each bit. Also, in the event that one bit breaks, this drill head will continue to function without necessity for immediate pull-out.

Blocks and bits are adaptable to either new or previously-used barrel-type drill heads. Bits, which are $7\frac{1}{8}$ " wide and $3\frac{1}{2}$ " long, have a protective black oxide finish that will not corrode even if stored indefinitely. For full details, write Austin Powder Company, Cleveland 13, Ohio.



USED EQUIPMENT

Item 1056-P522—Caterpillar D7 Tractor mounted with LeTorneau Rear Double Drum Cable Control Unit and Cat 7A Angle Blade. The 7A blade and heavy duty radiator shroud was installed new approx. 18 months ago; diesel engine and starting engine were completely rebuilt; master clutch and transmission were rebuilt; bevel gear shaft and seals were replaced and steering clutches reconditioned; new seals were installed in final drive; hydraulic steering boosters rebuilt; track roller frames were reconditioned; new recoil spring installed; new solid type idlers installed; reconditioned bottom rollers and installed new pins and bushings in tracks; serviced, steam cleaned and painted.

\$10,300—F.O.B. Pittsburgh, Pa.

Item 1056-P518—Caterpillar Model No. 6 Hylift, approximately 1 year old and 894 hours on service meter. Direct electric starting. Installed new track shoes; rollers reconditioned and replaced; shafts and bushings installed in front idlers; replaced gasket in right final drive can and installed new seals; checked pinion, bevel gear and transmission; adjusted operating clutches; installed new 2 1/4 cubic yard bucket; machine is serviced, steam cleaned and painted.

\$14,500—F.O.B. Pittsburgh, Pa.

Item 256-B166—Caterpillar D8 Tractor with 8S Bulldozer and No. 24 Cable Control, Crankcase Guard, Front pull hook, Canopy Top and 4 White Lights. This equipment is in good mechanical condition; has operated approximately 4 months since repairs were made, which included final drives, new track roller assemblies, new 24 in. tracks complete. We recently made minor repairs, cleaned and painted.

\$14,000—F.O.B. Bradford, Pa.

Item 1156-E219—Oliver OC12 Diesel Tractor, Wide Gauge with Heil Straight Hyd. Bulldozer. This machine is 1 1/2 years old and has new tracks installed; all rollers are rebuilt and in perfect condition; tractor has been cleaned and painted.

\$7000—F.O.B. Erie, Pa.

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621-S Page Diesel Drag, 125', 6 yd.
7200 Marion Diesel Drag, 135', 5 1/2 yd.
621-S Page Diesel Drag, 135', 7 1/2 yd.
200-W Bucyrus Monighan Drag, 125'
7-W Monighan Elec. Drag, 120', 7 yd.
618 Page Diesel Drag, 120', 5 yd.
5-W Bucyrus Monighan Drag, 120', 5 yd.
2400 Lima Dragline, 110', 6 yard
1055 P&H Dragline, 90', 4 yd.
1201 Lima Dragline, 90', 3 yard
955 P&H Dragline, 90', 2 1/2 yd.
3500 Manitowoc 60 ton Crane
802 Lima Cranes
4161 Marion Comb. Elec. Drag and Shovel
100B Comb. Electric Drag and Shovel
2000-B Manitowoc Comb. Shovel and Crane
5480 Marion Electric 15 yard Shovel
1600 P&H Electric 6 yard Shovel
2400 Lima 6 yard Standard Shovel
4500 Manitowoc 4 yard H. L. Shovel
1201 Lima 2 1/2 yd. H. L. Shovel
3500 Manitowoc 2 yd. H. L. Shovel
3000-B Manitowoc 2 yd. Shovel
955 P&H Standard Shovel
Unit 1020 3/4 yard Shovel—1 yr. old
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